This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1-19. (Cancelled)

20. (Currently Amended) A method of eliminating packet loss at a packet-switching device, comprising the steps of:

(1) collecting in a first device a plurality of different data signals;

(2) converting each of the plurality of different data signals into digital form;

(3) transmitting the data signals in digital form from step (2) over a ~~backplane~~ bus or internal network to a CPU of the first device;

(4) in the CPU of the first device, converting the digital data into network packets destined for delivery to the packet-switching device; and

(5) in the CPU of the first device, scheduling the transmission of the network packets to the packet-switching device in such a way as to eliminate packet loss in the packet-switching device that would otherwise occur if the network packets had been processed by separate devices coupled to the packet-switching device, wherein packet loss is eliminated without the need for retransmission to the packet-switching device by coordinating the transmission from the first device to avoid contention among transmitters for the packet-switching device, in such a way as to eliminate queue overflow in the packet-switching device, the scheduling step comprising:

detecting the presence of one or more other devices connected to the first device;

identifying a designated master device within the one or more other devices connected to the first device; and

receiving from the designated master device a transmission schedule indicating times during which transmission to the packet-switching device would not conflict with transmissions of any of the one or more other devices connected to the first device.

21. (Currently Amended) The method of claim 20, wherein the scheduling step further comprises:

from the first device ~~a transmitting node~~, transmitting a proposed delivery schedule to the designated master device ~~an intended receiving node~~, wherein the proposed delivery schedule indicates time slots corresponding to times during which the first device ~~transmitting node~~ proposes to transmit packets to the packet-switching device~~intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ an indication as to whether the proposed delivery schedule conflicts with any of the one or more other devices connected to the first device ~~is acceptable to the intended receiving node~~; and

if the proposed delivery schedule does not conflict with any of the one or more other devices connected to the first device ~~is acceptable~~, transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed delivery schedule.

22. (Currently Amended) The method of claim 20, wherein the scheduling step further comprises:

from the first device ~~a transmitting node~~, transmitting a query to the designated master device ~~an intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ a transmission ~~reception~~ map indicating time slots during which transmission to the packet-switching device ~~intended receiving node~~ would not conflict with any of the one or more other devices connected to the first device~~other transmitters~~;

from the first device ~~transmitting node~~, transmitting a proposed transmission map indicating time slots, compatible with the transmission ~~reception~~ map, during which the first device ~~transmitting node~~ intends to transmit packets; and

from the first device ~~transmitting node~~, transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed transmission map.

23. (Currently Amended) The method of claim 20, wherein the scheduling step further comprises:

from the first device ~~a transmitting node~~, transmitting a bandwidth requirement to the designated master device ~~an intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ a transmission map indicating time slots during which transmission to the packet-switching device ~~intended receiving node~~ would not conflict with any of the one or more other devices connected to the first device ~~other transmitters~~; and

from the first device ~~transmitting node~~, transmitting packets to the packet-switching device ~~intended receiving node~~ according to the transmission map.

24. (Currently Amended) The method of claim 20, wherein the scheduling step further comprises:

from the first device ~~a transmitting node~~, transmitting a query to the ~~a~~ designated master device ~~node~~ for a LAN-wide transmission map;

receiving from the designated master device ~~node~~ a LAN-wide transmission map indicating time slots during which transmission to an packet-switching device ~~intended receiving node~~ would not conflict with any of the one or more other devices connected to the first device ~~other transmitters~~;

transmitting to the designated master device ~~node~~ a proposed transmission map compatible with the LAN-wide transmission map, said proposed transmission map indicating time slots during which the first device ~~transmitting node~~ intends to transmit packets to the packet-switching device ~~intended receiving node~~; and

from the first device ~~transmitting node~~, transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed transmission map.

25. (Cancelled)

26. (Previously Presented) The method of claim 20, wherein the packet-switching device is an Ethernet LAN switch.

27. (Previously Presented) The method of claim 26, wherein the Ethernet LAN switch is coupled to a Wide Area Network (WAN) router.

28. (Previously Presented) The method of claim 20, wherein the plurality of different data signals originate from a plurality of local transmitters connected to the first device.

29. (Currently Amended) An apparatus ~~A device~~ configured to eliminate packet loss at a packet-switching device, the apparatus ~~device~~ comprising:

a CPU;

a ~~backplane~~ bus or internal network;

an internal timing system capable of synchronizing with one or more external time sources;

a plurality of modules coupled to the ~~backplane~~ bus or internal network, where each module is configured to receive data of a different type and present the received data to the CPU over the ~~backplane~~ bus or internal network; and

a packet network interface connectable to a packet-switching device,

wherein the apparatus ~~device~~ is configured to perform the steps of:

(1) collecting a plurality of different data signals from the plurality of modules;

(2) converting each of the plurality of different data signals into digital form;

(3) transmitting the data signals in digital form from step (2) over the ~~backplane~~ bus or internal network to the CPU;

(4) in the CPU, converting the digital data into network packets destined for delivery to the packet-switching device; and

(5) in the CPU, scheduling transmission of the network packets to the packet-switching device in such a way as to eliminate packet loss in the packet-switching device that would otherwise occur if the network packets had been processed by separate devices coupled to the packet-switching device, wherein

packet loss is eliminated without the need for retransmission to the packet-switching device by coordinating the transmission of network packets to avoid contention among transmitters for the packet-switching device, in such a way as to eliminate queue overflow in the packet-switching device, the scheduling step comprising:

detecting the presence of one or more other devices connected to the apparatus;

identifying a designated master device within the one or more other devices connected to the apparatus; and

receiving from the designated master device a transmission schedule indicating times during which transmission to the packet-switching device would not conflict with transmissions of any of the one or more other devices connected to the apparatus.

30. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein the scheduling step further comprises:

transmitting a proposed delivery schedule to the designated master device ~~an intended receiving node~~, wherein the proposed delivery schedule indicates proposed time slots for transmission of packets from the apparatus to the packet-switching device~~intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ an indication as to whether the proposed delivery schedule conflicts with any of the one or more other devices connected to the apparatus ~~is acceptable to the intended receiving node~~; and

if the proposed delivery schedule does not conflict with any of the one or more other devices connected to the apparatus ~~is acceptable~~, transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed delivery schedule.

31. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein the scheduling step comprises:

transmitting a query to the designated master device ~~an intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ a transmission ~~reception~~ map indicating time slots during which transmission to the packet-switching device ~~intended receiving node~~ would not conflict with any of the one or more other devices connected to the apparatus ~~other transmitters~~;

transmitting a proposed transmission map to the designated master device indicating time slots, compatible with the transmission ~~reception~~ map, for transmission of packets to the packet-switching device ~~intended receiving node~~; and

transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed transmission map.

32. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein the scheduling step comprises:

transmitting a bandwidth requirement to the designated master device ~~an intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ a transmission map indicating time slots during which transmission to the packet-switching device ~~intended receiving node~~ would not conflict any of the one or more other devices connected to the apparatus ~~other transmitters~~; and

transmitting packets to the packet-switching device ~~intended receiving node~~ according to the transmission map.

33. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein the scheduling step comprises:

transmitting a query to the ~~a~~ designated master device ~~node~~ for a LAN-wide transmission map;

receiving from the designated master device ~~node~~ a LAN-wide transmission map indicating time slots during which transmission to the packet-switching device ~~an intended receiving node~~ would not conflict with any of the one or more other devices connected to the apparatus ~~other transmitters~~;

transmitting to the designated master device ~~node~~ a proposed transmission map compatible with the LAN-wide transmission map, said proposed transmission map indicating time slots during which the apparatus ~~device~~ intends to transmit packets to the packet-switching device~~intended receiving node~~; and

transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed transmission map.

34. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein the packet-switching device is an Ethernet LAN switch.

35. (Currently Amended) The apparatus ~~device~~ of claim 34, wherein the Ethernet LAN switch is coupled to a Wide Area Network (WAN) router.

36. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein the plurality of modules comprises a plurality of local transmitters connected to the apparatus ~~device~~.

37. (Currently Amended) A system to eliminate packet loss at a packet-switching device, the system comprising a plurality of devices, each said device comprising:

a CPU;

a ~~backplane~~ bus or internal network;

an internal timing system capable of synchronizing with one or more external time sources;

one or more modules coupled to the ~~backplane~~ bus or internal network, where each module is configured to receive data and present the received data to the CPU over the ~~backplane~~ bus or internal network; and

a packet network interface connectable to a packet-switching device,

wherein each said device is configured to perform the steps of:

(1) collecting a plurality of different data signals from the one or more modules;

(2) converting each of the plurality of different data signals into digital form;

(3) transmitting the data signals in digital form from step (2) over the ~~backplane~~ bus or internal network to the CPU;

(4) in the CPU, converting the digital data into network packets destined for delivery to the packet-switching device; and

(5) in the CPU, scheduling transmission of the network packets to the packet-switching device in such a way as to eliminate packet loss in the packet-switching device that would otherwise occur if the network packets had been processed by separate devices coupled to the packet-switching device, the scheduling step comprising:

detecting the presence of one or more other devices in the system;

identifying a designated master device within the one or more other devices in the system; and

receiving from the designated master device a transmission schedule indicating times during which transmission to the packet-switching device would not conflict with transmissions of any of the one or more other devices in the system, and

wherein each said device is configured to connect ~~connected~~ to the same packet-switching device, and

wherein each said device is configured to coordinate ~~coordinates~~ with the other devices the scheduling of network packets to the packet-switching device so as to eliminate packet loss at the packet-switching device without the need for retransmission to the packet-switching device by avoiding contention among the devices for the packet-switching device, in such a way as to eliminate queue overflow in the packet-switching device.

38. (Currently Amended) The system of claim 37, wherein at least one of the plurality of devices in the system is configure to schedule ~~schedules~~ packet delivery over a LAN by

agreeing upon time slots during which network packets will be transmitted to the packet-switching device.

39. (Currently Amended) The system of claim 3738, wherein the scheduling step further ~~of packet delivery over the LAN~~ comprises:

transmitting a proposed delivery schedule to the designated master device ~~an intended receiving node~~, wherein the proposed delivery schedule indicates proposed time slots for transmission of packets to the packet-switching device~~intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ an indication as to whether the proposed delivery schedule conflicts with any of the other devices in the system ~~is acceptable to the intended receiving node~~; and

if the proposed delivery schedule does not conflict with any of the other devices in the system ~~is acceptable~~, transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed delivery schedule.

40. (Currently Amended) The system of claim 3738, wherein the scheduling step further ~~of packet delivery over the LAN~~ comprises:

transmitting a query to the designated master device ~~an intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ a transmission ~~reception~~ map indicating time slots during which transmission to the packet-switching device ~~intended receiving node~~ would not conflict with any of the other devices in the system ~~other transmitters~~;

transmitting to the designated master device a proposed transmission map indicating time slots, compatible with the transmission ~~reception~~ map, for transmission of packets to the packet-switching device~~intended receiving node~~; and

transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed transmission map.

41. (Currently Amended) The system of claim 3738, wherein the scheduling step further ~~of packet delivery over the LAN~~ comprises:

transmitting a bandwidth requirement to the designated master device ~~an intended receiving node~~;

receiving from the designated master device ~~intended receiving node~~ a transmission map indicating time slots during which transmission to the packet-switching device ~~intended receiving node~~ would not conflict with any of the other devices in the system ~~other transmitters~~; and

transmitting packets to the packet-switching device ~~intended receiving node~~ according to the transmission map.

42. (Currently Amended) The system of claim 37~~38~~, wherein the scheduling step further ~~of packet delivery over the LAN~~ comprises:

transmitting a query to the ~~a~~ designated master device ~~node~~ for a LAN-wide transmission map;

receiving from the designated master device ~~node~~ a LAN-wide transmission map indicating time slots during which transmission to the packet-switching device ~~an intended receiving node~~ would not conflict with any of the other devices in the system ~~other transmitters~~;

transmitting to the designated master device ~~node~~ a proposed transmission map compatible with the LAN-wide transmission map, said proposed transmission map indicating time slots during which said device ~~a transmitting node~~ intends to transmit packets to the packet-switching device~~intended receiving node~~; and

transmitting packets to the packet-switching device ~~intended receiving node~~ according to the proposed transmission map.

43. (Previously Presented) The system of claim 37, wherein the packet-switching device is an Ethernet LAN switch.

44. (Previously Presented) The system of claim 43, wherein the Ethernet LAN switch is coupled to a Wide Area Network (WAN) router.

45. (Currently Amended) The system of claim 37, wherein the plurality of devices are configured to be synchronized via the internal timing systems of the devices such that only one of the devices at a time transmits packets to the packet-switching device.

46. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein converting the digital data into network packets comprises generating Internet Protocol (IP) or Ethernet packets destined for delivery to the packet-switching device.

47. (Currently Amended) The apparatus ~~device~~ of claim 30, wherein the proposed delivery schedule is determined between the apparatus ~~packet-switching device~~ and the designated master device ~~intended receiving node~~, without schedule coordination among intermediate network resources.

48. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein each of the plurality of modules is configured to derive its own timing clock individually by referencing the internal timing system via the ~~backplane~~ bus or internal network.

49. (Currently Amended) The apparatus ~~device~~ of claim 29, wherein scheduling transmission of the network packets comprises configuring the internal timing system to provide software interrupts to the CPU at predetermined time intervals to initiate transmission of said network packets.

50. (Currently Amended) A system to eliminate packet loss and queue overflow at an Ethernet LAN switch, the system comprising:

a plurality of devices, wherein each device is configured to connect to a single Ethernet LAN switch coupled to a Wide Area Network (WAN) router, and wherein each device is configured to connect to one or more other devices in the plurality of devices, each said device comprising:

a CPU configured to control at least some of the operations of the device;

a ~~backplane~~ bus or internal network;

one or more modules coupled to the ~~backplane~~ bus or internal network, where each module is configured to receive data and present the received data to the CPU over the ~~backplane~~ bus or internal network; and

an internal timing system capable of synchronizing with one or more other timing systems of the other devices in the plurality of devices; and

a packet network interface connectable to the Ethernet LAN switch,

wherein each said device is further configured to perform the steps of:

(1) collecting a plurality of different data signals from the one or more modules coupled to the ~~backplane~~ bus or internal network, wherein at least one of the data signals comprises an analog voice data signal and at least one of the data signals comprises an analog video data signal;

(2) converting each of the plurality of different data signals into digital form, wherein the converting comprises converting the analog voice data signal to a digital voice data signal, converting the analog video data signal to a digital video data signal, and compressing the digital video data signal;

(3) transmitting the data signals in digital form over the ~~backplane~~ bus or internal network to the CPU;

(4) in the CPU, converting the digital data into Ethernet packet frames for delivery to the Ethernet LAN switch;

(5) detecting the presence of one or more of the other devices in the plurality of devices connected to the device;

(6) identifying a designated master device within the plurality of devices;

(7) transmitting a query to the designated master device for a transmission map;

(8) receiving from the designated master device a system-wide transmission map indicating time slots during which transmission to an intended receiving node would not conflict with transmissions of any of the other devices in the plurality of devices, wherein the system-wide

transmission map comprises a bitmap with each bit corresponding to a different time slot;

(9) determining a number of required time slots within the system-wide transmission map that are required to transmit the Ethernet packet frames to the intended receiving node;

(10) transmitting to the designated master device a proposed transmission map compatible with the system-wide transmission map, said proposed transmission map indicating time slots during which the device intends to transmit the Ethernet packet frames to the intended receiving node, wherein the proposed transmission map is a bitmap with each bit corresponding to a different time slot;

(11) configuring the internal timing system of the device to provide software interrupts to the CPU at time intervals based on the proposed transmission map to initiate transmission of said Ethernet packet frames;

(12) transmitting the Ethernet packet frames from the device to the intended receiving node via the Ethernet LAN switch and the Wide Area Network (WAN) router according to the proposed transmission map; and

(13) after transmitting the Ethernet packet frames to the intended receiving node, signaling the designated master device to indicate that no further transmission is required.